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from Vetronix Corporation

Mastertech®/Tech1A® Vehicle Software

Vetronix Corporation

Diagnostic Solutions For Vehicle Electronics

Mastertech/Tech 1A Software

SYSTEM COVERAGE OVERVIEW

Vetronix Corporation offers the most comprehensive vehicle coverage in the industry, and makes this information available for both the Mastertech and Tech 1A testers.

The following data summarizes the functional coverage available in each cartridge. Cartridges may contain any combination of data parameters, diagnostic trouble codes, and special tests. Please refer to the specific manufacturer sections for more detailed information.

Application Software	Datalist	DTCs	Freeze Frame Data	Failure Record Data	Snapshot	Bi-directional OBD Controls	Adaptive Reset Tests	OBD II Monitor Data	System Information
GM Powertrain	✔	✔	✔	✔	✔	✔	✔	✔	✔
GM Chassis	✔	✔			✔	✔			✔
GM Body Systems	✔	✔			✔	✔			✔
Ford Powertrain	✔	✔	✔		✔	✔		✔	
Ford Chassis		✔							
Chrysler Powertrain	✔	✔	✔		✔	✔	✔		✔
Asian Imports	✔	✔				✔			
Global OBD II	✔	✔	✔		✔			✔	

"Command & Control" Software — a Vetronix exclusive

Command & Control is a patented bi-directional process available from Vetronix: powerful ScanTest™ software that gives you the ability to send commands out to actuate specific vehicle systems and then read the sensors responses. But that's not all — you can also interactively control vehicle functions from the tester.

✔ Shift Transmissions
✔ Bleed Brakes
✔ Perform Injector Balance Tests
✔ Perform Oxygen Sensor Tests
✔ Actuator Output Device Control

EXAMPLE: BI-DIRECTIONAL CLOSED LOOP TESTING

With Vetronix's patented bi-directional testing, a technician can command the on-board computer to turn on a specific circuit or component. With a voltmeter, the technician can then measure the circuit to confirm whether the on-board computer actually energized the circuit. In the case of EGR, the technician can verify that EGR gas flow occurred by observing an RPM drop when the circuit was energized. This is an example of "closed loop testing" that can be employed only with patented bi-directional diagnostics, available from Vetronix.

GLOBAL™ OBD II

The new Vetronix Global OBD II & Toolpak software is designed to help you understand and diagnose all OBD II systems.

Instead of having to buy multiple cartridges to diagnose domestic, European, and Asian vehicles, you can diagnose all OBD II compliant vehicle systems with one cartridge, one cable, and your existing Vetronix Mastertech or Tech 1A tester.

Global OBD II software supports a broad base of vehicle manufacturers and includes full OBD II diagnostic test mode functionality in a display format that is easy to understand. The OBD II Toolpak software complements the tester's Global OBD II diagnostic test mode capabilities, and helps you become familiar with OBD II terminology, operating modes and common operating values. No other scantool offers such a complete OBD II diagnostic software package for OBD II compliant vehicle systems.

Software Kit Configurations

SOFTWARE CARTRIDGES

01002309	GM/F/C Powertrain (97/97/97) – With Global OBD II & GM Demo – Starter Cartridge Kit
01002310	GM/F/C Powertrain (97/97/97) – With Global OBD II & GM Demo – Update Cartridge Kit
01002293	GM 81-97 Powertrain – Starter Cartridge Kit
01002294	GM 81-97 Powertrain – Update Cartridge Kit
01002311	GM 88-97 Chassis – Starter Cartridge Kit
01002312	GM 88-97 Chassis – Update Cartridge Kit
01002313	GM 88-97 Body Systems – Starter Cartridge Kit
01002314	GM 88-97 Body Systems – Update Cartridge Kit
01002315	Ford 81-97 Powertrain – T1 Starter Cartridge Kit
01002316	Ford 81-97 Powertrain – MT/T1A Starter Cartridge Kit
01002317	Ford 81-97 Powertrain – Update Cartridge Kit
01001459	GM/Ford Chassis (97/97) – Starter Cartridge Kit
01001458	GM/Ford Chassis (97/97) – Update Cartridge Kit
01002318	Chrysler 83-97 Powertrain – T1 Starter Cartridge Kit
01002319	Chrysler 83-97 Powertrain – MT/T1A Starter Cartridge Kit
01002320	Chrysler 83-97 Powertrain – Update Cartridge Kit
01001980	Asian Imports 83-94 (Rel. 2) – Starter Cartridge Kit
01001981	Asian Imports 83-94 (Rel. 2) – Update Cartridge Kit
01002140	Heavy Duty Applications (Ver. 1.0) – Starter Cartridge Kit
01002081	Heavy Duty Applications (Ver. 1.0) – Update Cartridge Kit
01001282	Marine ECM (Ver. 2.0) Cartridge Kit

MASTERTECH TESTER & SOFTWARE KITS

01001409	Mastertech Kit With GM/F/C Adapters
01001410	Mastertech Kit With OBD II
01002235	Mastertech Kit With OBD II & GM/F/C Adapters
01002210	Mastertech Kit for GM/F/C PT (97/97/97) With Global OBD II, GM Demo & Chry. VIM
01002221	Mastertech Kit for GM/F/C PT (97/97/97) With Global OBD II, GM Demo, Chry. VIM Kit and EDLS
01002259	Mastertech Software Combo Kit for GM/F/C PT (97/97/97) With Global OBD II, GM Demo and Chry. VIM*

TECH 1A TESTER & SOFTWARE KITS

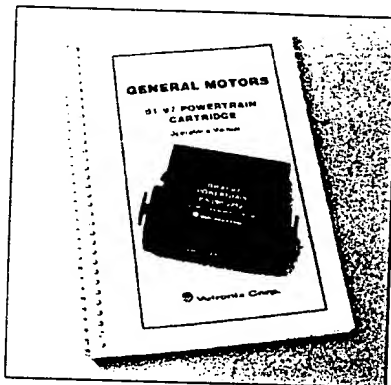|	
01001359	Tech 1A Kit With GM/F/C Adapters
01002211	Tech 1A Kit for GM/F/C PT (97/97/97) With Global OBD II, OBD II Interface Kit & GM Demo
01002254	Tech 1A Kit for GM/F/C PT (97/97/97) With Global OBD II, OBD II Interface Kit, GM Demo and Chry. VIM
01002082	Tech 1A Kit – Marine
01002226	Tech 1A Kit With Global OBD II
01001359–01	Tech 1A Kit For Tech 1 Trade In Only
01002171	Global OBD II Application Kit (Hardware and Software)*
01002258	Tech 1A Software Combo Kit for GM/F/C PT (97/97/97) With Global OBD II, GM Demo and Chry. VIM*

* Testers sold separately.

To Order or For More Information:
Call Vetronix Customer Support
1-800/321-4889

GM Powertrain

PRODUCT OVERVIEW

Diagnose and troubleshoot GM engine Computer Command Control (C3) system problems by interfacing with vehicle Electronic Control Units (ECU), such as the Engine Control Module (ECM), Powertrain Control Module (PCM), Vehicle Control Module (VCM), and Transmission Control Module (TCM), including vehicles with Enhanced OBD II (GM Class 2) systems, via the Data Link Connector (DLC).

HIGHLIGHTS

✔ The special Snapshot feature captures diagnostic data list parameters, DTCs and enables technicians to store them for replay after an intermittent problem has occurred or after a road test.

✔ Bi-directional communications between the tester and on-board vehicle controllers help you troubleshoot specific systems that often cause customer driveablity complaints.

✔ GM Powertrain features include:

• Bi-directional control of many outputs and actuators, including feedback and built-in safety features that enhance user and system safety.

Diagnose engine and transmission electronic control units found in General Motors passenger cars, light duty and medium duty trucks, including Geo and Saturn.

• Enhanced OBD II (GM Class 2) functionality provides more information than generic OBD II

• Reads parameters from engine and transmission ECUs simultaneously on select vehicles

• Freeze Frame feature available on vehicle systems with Enhanced OBD II (GM Class 2) that provides access to an ECU-based Snapshot taken when an emissions-related DTC is set

• Failure records feature available on vehicle systems with Enhanced OBD II that provide up to six ECU-based Snapshots taken when a system failure (DTC) occurs

Full screen user-friendly text displays assist the diagnostic procedure, and promote more time repairing vehicles and less time referencing service manuals.

From the continuous hard fault to the hard to find intermittent fault, the GM 81-97 Powertrain Cartridge can increase your efficiency by helping you identify all types of vehicle powertrain problems.

EXAMPLE: BI-DIRECTIONAL CLOSED LOOP TESTING

With Vetronix's patented bi-directional testing, a technician can command the on-board computer to turn on a specific circuit or component. With a voltmeter, the technician can then measure the circuit to confirm whether the on-board computer actually energized the circuit. In the case of EGR, the technician can verify that EGR gas flow occurred by observing an RPM drop when the circuit was energized. This is an example of "closed loop testing" that can be employed only with patented bi-directional diagnostics, available from Vetronix.

VEHICLE SYSTEM APPLICATIONS

Engine Systems	1995-97 GM vehicles with OBD II compliant PCMs and ECMs 1981-97 Chevrolet, Buick, Cadillac, Oldsmobile, Pontiac cars and light duty trucks 1985-89 Cadillac C-car Body Computer Module (BCM) 1991-97 Saturn vehicles 1993-97 6.5L turbo diesel medium duty trucks 1989 6.0L, 1990-97 6.0L/7.0L medium duty trucks
Transmission Systems	1981-97 passenger cars and light duty trucks with PCM/TCM/VCMs 1991-97 medium duty truck TCMs

FEATURES:

✔ Selects system by model year and system type, or VIN code

✔ Supports diagnosis of 4T40E, 4T60E, 4L60E, plus 4T65E, 4T80E and 4L80E electronically controlled transmissions

✔ Multiple parameter lists for all engine, all transmission, and selected EGR, Idle Air Control, Misfire, Torque Converter Clutch, Pressure Control, Spark, HO25, Evap, Cruise, Drivers, Dash Lamps/IPC, Fuel Trim, Catalyst, Trans Adapts and Shift Solenoid diagnostic data on OBD II PCMs and VCMs

✔ Displays DTC information, including DTC number, description, and failed condition on Enhanced OBD II PCMs

✔ Displays history, current, and failed this ignition cycle information for each OBD II PCM diagnostic trouble code, MIL request, Last Test Fail, Test Fail SCC, Not Run SCC, DTC Status

✔ Lets you access DTCs in a single keystroke from Data List

✔ EVAP system tests available on GM vehicles equipped with Enhanced EVAP system

✔ Monitors over 500 ECM, PCM, VCM and TCM diagnostic data parameters

✔ Monitors 46 BCM diagnostic data parameters

✔ Saves from 75 to over 350 samples of diagnostic data before and after intermittent events

✔ Full screen displays in plain English

✔ Displays and clears ECM, PCM, VCM, TCM and BCM Trouble Codes

✔ Prints ECM, PCM, VCM, TCM and BCM Codes as well as Saturn Engine Information flags and QDM failures

✔ Controls ECM, PCM, VCM, TCM outputs

✔ Commands ECM operating modes including Field Service, Backup Fuel and Fixed Spark

✔ Controls AIR Solenoid while monitoring ECM diagnostic data

✔ Controls engine Idle speed

✔ Performs Idle Learn test

✔ Resets Block Learn Memory values

✔ Controls individual fuel injectors

✔ Injector Flow Test (Class 2 vehicles that apply)

✔ Retains data when power is disconnected

✔ User friendly operator interface

OPERATING MODES

✔ CLEAR CODES
Commands clearing of Trouble Codes stored in the ECM, PCM, VCM, TCM and BCM.

✔ DATA LIST
Displays diagnostic data parameters in pre-selected or user selected pairs. For OBD II PCMs and VCMs, data list parameter description contains information on which circuit the over-voltage or over-current failure occurred.

✔ ECM MODE CONTROL
Commands Field Service, Fixed Spark, Backup Fuel, Road Test or diagnostic ECM operating modes.

✔ DIAGNOSTIC TROUBLE CODES (DTC)
Displays stored trouble codes for ECM, PCM, VCM, TCM and BCM systems, along with a full-screen description of each code. Also displays Saturn Engine Information flags and QDM failures.

✔ SNAPSHOT
Snapshots can be set up to trigger from any diagnostic trouble code, a specific trouble code, or by manual trigger. The trigger point can be set at the beginning, middle, or end of an event. This provides more flexibility in vehicle system diagnosis. Captured data can be reviewed on a sample by sample basis.

✔ OUTPUT TESTS
Controls state of various engine and transmission actuators. Most cases allow display of data parameters during actuator control.

✔ OBD II CONTROLS
Some of the OBD controls available are: Air Solenoid control, Min-T Rich, Min-T Lean, Clear Codes, PROM ID display, Backup Fuel, RPM control, Idle Learn, ISC Min Air, ISC Cal Air, BLM Reset, Injector Balance, VIN Code INFO, EGR Control, Fuel System Prime, QDM Tests, and Prestroke Actuator Control, Injector Flow, EVAP System Controls, EGR Tests, OIL LIFs Reset, Dash Lamps.

General Motors
GM Chassis

PRODUCT OVERVIEW

The GM Chassis Cartridge is for diagnosing and troubleshooting Antilock Brake Systems (ABS) used on GM vehicles since 1988.

Antilock brake systems covered includes: Delco Chassis Division ABS III and ABS VI, Bosch ABS, Delco/Bosch, Delphi Systems, Teves Mark IV ABS, and Kelsey Hayes RWAL and 4WAL.

Traction control systems (TCS) coverage for Delco Chassis Division, Bosch, Delco/Bosch, and Teves is also included.
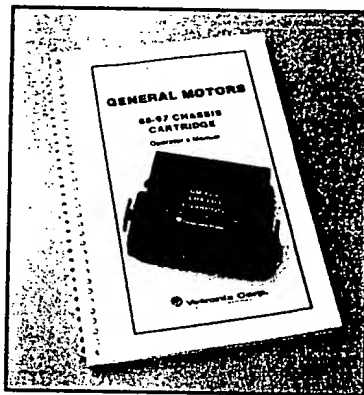
NEW FOR 1997

✔ GM Class II ABS System
✔ PCD ABS VI, Delco/Bosch including integrated Chassis Controller Systems (ICCS1 & ICCS2), 4WAL, TEVES
✔ Tire Inflation Module (TIM)
✔ Variable Effort Steering (VES) System
  • Electronic Variable Orifice (EVO)
  • Magna Steer Variable Assist (MSVA)
✔ Traction Control System (TCS)
  • TCS
  • Electronic Traction Control (ETC)

Use the GM 88-97 Chassis Cartridge to diagnose General Motors ABS, VES and ride control systems.

HIGHLIGHTS

✔ Displays information about the condition of the vehicle ABS at the time that diagnostic trouble codes (DTCs) occurred
✔ Snapshot can be triggered manually, or can be set to trigger at the beginning, middle or end of an event
✔ Automatic triggers are available for most vehicles
✔ Supports a variety of unique ABS tests including manual control of ABS solenoids, relays, pumps, motors, and warning lamps
✔ Provides tire size read & calibration for All Wheel ABS
✔ System bleed preparation for ABS VI & TEVES

ANTILOCK BRAKE SYSTEM FUNCTIONS

The GM 88-97 Chassis Cartridge provides diagnostic functions for antilock brake systems including: Data List, Snapshot, and reading and clearing DTCs. It can also display information about the condition of the vehicle and the ABS at the time trouble codes occurred.

The Chassis cartridge also supports a variety of vehicle specific, unique ABS diagnostic tests including manual control of ABS solenoids, relays and motors.

For GM ABS systems with integrated traction control (TCS), the Chassis Cartridge can test the TCS components and displays diagnostic data list values.

ADDITIONAL SYSTEMS

In addition to ABS systems, this cartridge supports diagnosis of Variable Effort Steering (VES) systems, ABS with traction control (ABS/TCS), the new Ride Control systems introduced in 1992, road sensitive suspension introduced in 1993, real time damping introduced in 1996, and Magna Steer (MSVA) introduced in 1996.

FEATURES

✔ Monitors diagnostic data parameters
✔ Saves samples of diagnostic data parameters before and after intermittent events
✔ Menu driven operating mode and test selection
✔ Selects vehicle by model year & vehicle type, VIN code, or fuel system
✔ Displays current and history trouble codes
✔ Analyzes ABS trouble codes for fault isolation
✔ Clears DTCs
✔ Prints diagnostic parameters and trouble codes
  ✔ Performs specialized tests on chassis components
  ✔ Retains data when power is disconnected

✔ The automatic snapshot trigger feature samples data at a high rate of speed and can identify intermittent problems on specific vehicle systems if one of the following conditions exists:

  • Pump run time too short
  • Intermittent brake switch
  • Low pressure detection
  • Wheel speed out of range
  • Low brake fluid
  • Valve relay voltage out of range
  • ABS stop
  • Engine RPM sudden increase
  • Engine torque request out of range
  • Lateral accelerometer intermittent
  • Red brake tell-tale active
  • Battery voltage out of range
  • Valve relay off

Antilock Brake Systems and Traction Control System Coverage in the GM Chassis application:

Manufacturer	Supported System	Test Modes	Miscellaneous Tests
GENERAL MOTORS	Delco ABS III	Data List DTC History DTCs Snapshot	Manual Control Auto Bleed Hydraulic Control Pump Motor Test ABS Version
	Delco ABS VI, ABS VI and TCS	Data List DTC History DTCs Snapshot Bleed Preparation	Manual Control Test Modulator Test Hydraulic Control Test EMB Functional Test Motor Pack Test Gear Tension Relief Test Enable Relay Test Voltage Load Test Lamp Test ABS Version/System ID
	Teves Mark VI, Teves Mark VI and TCS	Data List DTCs Snapshot	Solenoid Test Auto Bleed TCS Systems Test
	Kelsey Hayes Rear Wheel Antilock (RWAL)	Data List (VCM RWAL only) Function Test DTCs Snapshot (VCM RWAL only) VSS Monitor	DRA Check Brake Switch Test
	Kelsey Hayes Four Wheel Antilock (4WAL)	Data List DTCs Snapshot	PROM ID History Data History Codes Tire Size Calibration
	Bosch ABS, Bosch ABS and ASR or TCS, Delco/Bosch ABS	Data List DTC History DTCs Snapshot TP Sensor Learn	Solenoid Test Auto Test Lamp Test Pilot Valve Test Auto Bleed ASR Test (Y-Car) TCS Test (D, E/K, V, Y-Cars)

Note: not all test modes are available on every GM vehicle. Consult 88-97 GM Chassis software or factory service information.

Supported GM Chassis systems:

Manufacturer	System Group	Supported System
GENERAL MOTORS	Antilock Brake	Delco ABS III and ABS VI Bosch ABS Teves Mark VI Rear Wheel Antilock (RWAL) Four Wheel Antilock (4WAL) Delco/Bosch ABS
	Traction Control	Traction Control System (TCS) Electronic Traction Control (ETC) Acceleration Slip Regulation (ASR)
	Variable Effort Steering	Electronic Variable Orifice (EVO) Variable Effort (VE) Magnasteer Variable Assist (MSVA)
	Electronic Suspension	Electronic Level Control (ELC) Selective Ride Control (SEL) Road Sensitive Suspension (RSS) Real Time Damping (RTD)

Note: not all systems are available on every GM vehicle. Consult factory service information.

General Motors
GM Body

PRODUCT OVERVIEW

The GM 88-97 Body Systems Cartridge is designed to help you diagnose and troubleshoot electronic body system computers and components that are connected through the vehicle Serial Data Link (SDL), including vehicles with enhanced GM Class 2 systems.
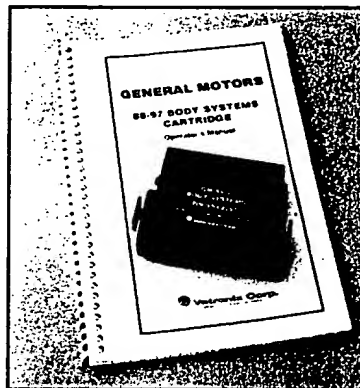
The cartridge lets you monitor data and control the operation of certain body systems by communicating with the computers via the vehicle's Data Link Connector (DLC).

NEW FOR 1997

✔ Supports new Enhanced GM Class 2 systems

✔ Automatically identifies body sub-systems

✔ Supports diagnostics and sends control commands to all Entertainment & Comfort (E&C) components for 1988-96 model years.

✔ EVI SIR Support

In addition, the GM 88-97 Body Cartridge targets 97 GM SIR Systems:

✔ Supports all 97 SIR Systems

✔ Allows for reading SIR DTCs

Use the GM 88-97 Body Cartridge to diagnose and troubleshoot electronic body system computers on many General Motors vehicles.

✔ Supports SIR data list parameters important to diagnosing SIR problems

HIGHLIGHTS

With the Body Systems Cartridge you can display diagnostic data parameters, passively monitor data being transmitted between vehicle components during normal operation, display and clear Diagnostic Trouble Codes (DTCs) that have been stored by the body system computers, and perform Snapshot tests to isolate intermittent fault conditions.

SPECIAL TESTS

Special tests allow you to program Remote Accessory Control (RAC) key tag signals; test interior, exterior, and security lamps; exercise relays associated with the RAC system; and transfer or reset Engine Oil Life Monitor (EOLM) and engine revolutions data.

The Driver Information Center (DIC) and Computer Control Module (CCM) also allow you to control the operation of switches, relays, and displays.

FEATURES

✔ Automatically identifies body subsystems

✔ Read diagnostic data parameters

✔ Read VIN and Option Content from BCM or CCM EEPROM memory device.

✔ Monitor device to device message transmissions on the Serial Data Link

✔ Read fault codes in plain English

✔ Clear fault codes

✔ SDL System Control Functions

✔ Use data list parameters with current GM repair manuals to verify reading in order to help in diagnosing vehicle problems

✔ Monitor, identify, control, and diagnose components installed on the Entertainment & Comfort Bus (E&C)

✔ Detect bus faults

✔ Prints body diagnostic Data List parameters

✔ Using the Snapshot feature, diagnose intermittent problems by capturing and storing multiple samples of system data before and after the problem occurs, then examining the data to determine the problem. This data is saved even if power is removed for up to two days!

✔ Supports Enhanced OBD II (GM Class 2) communications on 1996 E, K, C, H and G cars

✔ 1997 SIR Class 2 Systems support (E, K, S/T Truck)

SERIAL DATA LINK*

You can diagnosis the following systems connected to the Serial Data Link (SDL):.

✔ Body Computer Module (BCM)
✔ Instrument Panel Cluster (IPC)
✔ Cathode Ray Tube Controller (CRTC)
✔ Engine Oil Life Monitor (EOLM)
✔ Remote Accessory Control (RAC)
✔ Supplemental Inflatable Restraint (SIR) (SDM-A) (SDM-B) (SDM-E) (SDM-S) (SDM-R) (SDM-I)
✔ Driver Information Center (DIC)
✔ Heating, Ventilation, Air Conditioning (HVAC)

✔ Electronic Climate Control Panel (ECCP)
✔ Computer Control Module (CCM)
✔ Low Tire Pressure Warning System (LTPWS)

ENHANCED GM CLASS 2 SYSTEMS
✔ Remote Function Actuator (RFA)
✔ Memory Sent Module (MSM)
✔ Climate Control Module (CCP)
✔ Integrated Radio Chassis (IRC)
✔ Platform Zone Module (PZM)
✔ Phone (PHN)
✔ Heater & A/C Programmer (ACM)

Not all test modes are available on every GM vehicle. Consult your 1988-97 Vetronix GM Body Manual for system application.

OPERATING MODES

✔ DATA LIST

Displays diagnostic data parameters in pre-selected or user selected pairs.

✔ MONITOR NORMAL COMMUNICATIONS

Both SDL and E&C Monitor modes allow you to "eavesdrop" on normal communications between the different systems.

✔ DIAGNOSTIC TROUBLE CODES [DTC]

Display trouble codes which have been stored by the body system controllers, along with an English language description of the code. Trouble codes can be cleared or left in memory for later review.

✔ SNAPSHOT

Records data before and after the occurrence of an intermittent fault condition. Trigger conditions are user selectable and include triggers on fault codes or manual key press. Any part of the sample time can be displayed in data list format with a time/sample stamp.

✔ SPECIAL SYSTEM TESTS

Allows you to control system outputs in order to trace signals and troubleshoot. You can also conduct system specific tests such as transferring engine oil life data from one EOLM to another and programming new RAC key-tag signals.

THE ENTERTAINMENT & COMFORT SYSTEM

The Entertainment & Comfort (E&C) components communicate with each other through the E&C bus. The Body Cartridge supports testing the following components for selected systems:

✔ Radio Control Head
✔ Radio Receiver and Amplifier
✔ Graphic Equalizer Control Head
✔ Cassette Tape Deck
✔ Compact Disk Player
✔ Heating, Ventilation and Air Conditioning systems
✔ Cellular Telephone
✔ Compact Disk Changer
✔ Speakers
✔ Generation 2 radios

VEHICLE APPLICATIONS [BODY TYPES]

Year	Body Types
1988	E,K,N,W,*
1989	A,C,D,E,H,J,K,N,V,W,*
1990	A,C,D,E,F,H,J,K,M,N,R,V,W,Y,*
1991	A,B,C,D,E,F,H,J,K,L,M,N,R,V,W,Y,*
1992	A,B,C,D,E,F,H,J,K,L,M,N,R,V,W,Y,Z (Saturn)*
1993	A,B,C,D,E,F,H,J,K,L,M,N,R,U,V,W,Y,Z (Saturn)**
1994	A,B,C,D,E,F,G,H,J,K,L,M,N,S,W,Y,Z (Saturn)***
1995	A,B,C,D,E,F,G,H,J,K,L,M,N,S,W,Y,Z (Saturn)***
1997	A,B,C,D,E,F,G,H,J,K,L,M,N,S,W,Y,Z (Saturn), GEO Tracker***
1997	C,E,F,G,H,J,K,L,M,N,P,S,W,Y,Z (Saturn)***

* includes C/K Truck
** includes C/K, L/M Truck
*** includes C/K, L/M, S/T, G-Van, U/X Van Trucks, E/J, Geo Tracker
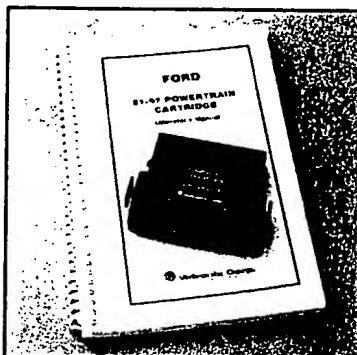
Ford Motor Co
Ford Powertrain

PRODUCT OVERVIEW

The Ford 81-97 Powertrain Cartridge is used to diagnose Powertrain (engine and transmission), Antilock Brake Systems, Integrated Vehicle Speed Control, Electronic Suspension, and Electronic Variable Orifice steering systems used in 1981 through 1997 Ford, Mercury, and Lincoln vehicles.

NEW FOR 1997

✔ New test mode structure has new diagnostic groups — more like a traditional diagnostic test sequence

✔ Diagnostic support for the 1995-97 E/F Series 7.4L VIN=F diesel powertrain system

✔ Support for enhanced OBD II diagnostic data parameters (SCP)

✔ Diagnostic support for electronic cruise control system on the 1995-97 E/F Series truck with the 7.4L VIN=F diesel engine

✔ Diagnostic coverage for new 1998 models of Contour/Mystique and Windstar

✔ Diagnostic support for 1996-97 F-series trucks that use EEC-IV

✔ Diagnostic support for Self-Test ABS systems on 1997 Thunderbird, Mustang, Mark VIII, and Bronco

✔ Perform Bidirectional (Output) Control tests on Ford EEC-V systems

The Ford Cartridge provides Data List (Ford's DCL), Snapshot, Quick Test, Miscellaneous Tests, and Star Mode to aid you in fast, efficient vehicle diagnosis.

HIGHLIGHTS

The Ford 81-97 Powertrain Cartridge supports enhanced OBD II diagnostics for EEC-V systems, including diagnostic data parameters. New EEC-V Quick Tests Modes are available to read Continuous, KOEO, and KOER DTCs, plus other helpful diagnostic test modes. Additionally, EEC-IV, MCU, IVSC, and ABS Quick Test Modes are available, along with the Ford STAR mode, a proven code reader function.

DATA LIST FUNCTION

You can create a custom data list or custom pair diagnostic data parameters to your own configuration. Examples include Engine Speed, Throttle Position Voltage, Throttle Angle, Brake Switch, Injector Control Pressure and Intake Air Temperature.

SNAPSHOT FUNCTION

Snapshot gives you the capability to save diagnostic data parameters to help diagnose intermittent problems or problems that only appear while driving the vehicle.

HARD COPY OUTPUT

With the RS232C interface and a printer, you can print a vehicle test summary that includes the year, model, engine, and Quick Test results. The hard Copy provides an account of all tests performed and the codes read in each test. A "keep alive" memory feature saves the information even after power has been disconnected, so you can power-up the tester and print at another location.

FEATURES

✓ Diagnostic support for EEC-V powertrain systems–enhanced OBD II

✓ Displays Ford SCP or DCL diagnostic data parameters

✓ Allows control of high and low speed fans, all outputs on, or all outputs off (gas engine only)

✓ Uses prompts specific to the vehicle and engine being tested

✓ Remembers last vehicle tested even after cycling power

✓ Speeds up testing by using fast codes for most tests (EEC-IV)

✓ Decodes diagnostic codes to service manual Pinpoint tests

✓ Reduces reading of false or invalid diagnostic codes

✓ Saves up to 24 diagnostic codes in each test mode

✓ Pinpoint test decoding prevents misinterpretation of code meaning

✓ Checks for special exception codes that affect the interpretation of the primary codes

✓ Supports printing of a summary of tests performed

✓ Retains data when power is disconnected

✓ All tests are selected from easy-to-use test menus

✓ Output control, output state and cylinder balance miscellaneous tests

OPERATING MODES AND TEST DESCRIPTIONS:

✔ DATA LIST

This mode displays Ford Standard Corporate Protocol (SCP) and Data Communication Link (DCL) engine diagnostic data parameters. Data list allows you to scroll (and custom pair) through several key engine parameters that can be used to diagnose engine or transmission problems. On EEC-V systems a custom data list can be selected, providing user defined parameters and increased data update rates.

✔ SNAPSHOT

The Snapshot function is available to store diagnostic data parameters that support intermittent diagnostics. Storage time can be up to several minutes. Snapshot works in conjunction with the Data List function, giving you the capability to save a Snapshot of Data List information. The snapshot function uses a manual trigger that gives you the command to trigger with a single key press. In addition, you can choose the trigger point to the beginning, middle or end of an event, which provides more flexibility in vehicle diagnosis. You also can replay snapshot data on the tester display for diagnostic analysis after the data has been captured.

✔ STAR MODE
(EEC-IV, MCU, IVSC, ISC-E, ABS, ELECTRONIC SUSPENSION, MECS, 4EAT)

In the Star mode, *you directly control the vehicle's Self Test Input (STI) line* and read fast or slow codes from the ECA. This allows you to perform Quick Tests following service manual procedures that reference the Star tester.

- The tester will store up to 24 Star service codes, so you can keep track of service codes from a number of tests.
- You can erase the tester's Star mode code buffer if you want to view service codes from a current Quick Test.
- After collecting codes in the Star mode, you can review the codes and decode to a pinpoint test (PPT) using Quick Test.

This mode of operation is used for basic service code reading and enables you to use the tester just like a Star tester. Up to 24 codes are stored for decoding and reviewing purposes.

✔ QUICK TESTS

In the Quick Test mode, the Ford 81-97 Powertrain Cartridge enables the tester to act as more than a diagnostic trouble code reader, with prompts to guide you:

- This cartridge provides you with automated guidance through the manufacturer's recommended self-test procedures for engine preparation and diagnostics.
- There are screen prompts for performing all Ford Quick Tests, informing you what to do along the way, step by step. This reduces the time that you spend thumbing through shop manuals looking for the correct test sequence procedure.
- All service codes received from the ECA are decoded into requests for action, test results, or pinpoint tests (PPT). In most cases, you will not need to refer to a service manual until the tester directs you to a specific pinpoint test. Specific pinpoint test references are displayed on the tester screen directing you to the appropriate PPT found in Ford and Mitchell manuals. The standard Ford Quick Tests are available when you select the Quick Test mode, all which are user driven with guided screens. After your choice, you will see a Test Selection menu similar to the following:

- **Engine System**

  Prepare Vehicle for Testing: scrolls through a list of checks necessary to prepare for vehicle diagnostics.

  Key On, Engine Off Test: offers vehicle specific prompts to help you read KOEO service codes. If possible, fast codes are used for this test to save you valuable testing time. You have the option to display the pin point test for each service code received.

  Timing Check: screen prompts help you perform test initialization for the distributor timing advance test on EEC-IV controllers. You are directed to appropriate follow-up tests after any pass/fail condition.

  Key On, Engine Running Test: is similar to the KOEO test in offering test specific prompts, fast service code reading and pin point test decoding. You do not need to watch for a dynamic response code, as the tester acknowledges the code and prompts you with the action to be performed.

  Wiggle Tests: tests for intermittent conditions after the completion of the KOEO or KOER tests. After pressing Wiggle Tests, you select KOEO or KOER to inform the tester as to which test you want to run.

Miscellaneous Tests offers additional tests for Output State and Cylinder Balance.

- **Output Control:** Specific to the EEC-V system, this test allows control of PCM outputs. Test modes All Off, All On, Low Speed Fan, and High Speed Fan can be performed to assist in EEC-V system diagnostics.
- **Output State Test:** lets you toggle the state of the engine solenoids and relays ON and OFF.
- **Cylinder Balance Test:** tests cylinder power contribution on SEFI engines by controlling each injector. Codes received from the ECA are interpreted by the tester and cylinder balance test results are displayed.

Clear Continuous Codes: Lets you erase continuous codes from ECA memory. Continuous codes are saved in the tester memory and are displayed in the Review Codes mode.

- ### Cruise Control System

Prepare Vehicle for Testing: scrolls through a list of checks necessary to prepare for vehicle diagnostics.

Key On, Engine Off Test: offers vehicle specific prompts to help you read KOEO service codes. If possible, fast codes are used for this test to save you valuable testing time. You have the option to display the pin point test for each service code received.

Key On, Engine Running Test: is similar to the KOEO test in offering test specific prompts, fast service code reading and pin point test decoding. You do not need to watch for a dynamic response code, as the tester acknowledges the code and prompts you with the action to be performed.

- ### Brake System

Read Codes Test: this test takes you through the process of retrieving codes from the Ford 4-wheel antilock braking system. You are prompted with display screens to ensure proper ignition key sequence which is necessary for diagnostics.

- ### Engine, Cruise Control and Brake System

Review Codes: Lets you review and decode up to 24 service codes stored in each test mode. The Ford Powertrain Cartridge automatically performs the decoding process to help eliminate errors from misreading service manuals or neglecting code exceptions that can change the original pin point test.

Print Summary: prints a summary of the vehicle under test. Vehicle information, tests performed, and service codes are listed to provide you with a record of your diagnostic service. In addition, the printout assists you in the service code reviewing process, as well as customer and business record keeping.
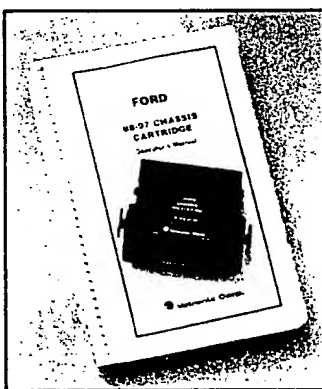
Ford Motor Co
Ford Chassis

PRODUCT OVERVIEW

The Ford Chassis cartridge is designed to aid technicians in diagnosing Antilock Brake Systems (ABS) on 1988-1997 Ford passenger cars and light duty trucks.

HIGHLIGHTS

✔ Supports Data List, Snapshot, plus reading and clearing diagnostic trouble codes

✔ Displays information about the condition of the vehicle ABS at the time that trouble codes occurred

✔ Vehicle specific automatic triggers are available for most vehicles

✔ Supports a variety of unique ABS tests including manual control of ABS solenoids, relays, pumps, motors, and lamps

With bi-directional control and Snapshot mode, the GM/Ford Chassis Cartridge gives you unparalleled diagnostic capability on General Motors and Ford chassis control systems.

FORD COVERAGE

The Ford application provides technicians with the power to efficiently diagnose Antilock Brake Systems, Integrated Vehicle Speed Control systems, and Air Suspension Electronic Control Assemblies (ECAs) used in 1986 to 1997 equipped Ford, Mercury, and Lincoln vehicles.

This application provides extensive test prompts and code reading capability for performing "Quick Tests" and other diagnostic tests on anti-lock brake, cruise control, and air suspension controllers

Spring fill tests can be performed on passenger cars equipped with Air Suspension Systems when using the STAR mode and factory service manuals.

FEATURES

✔ Monitors diagnostic parameters

✔ User prompts are specific to the vehicle and system being tested

✔ Saves samples of diagnostic data parameters before and after intermittent events (GM ABS)

✔ Displays current and history trouble codes

✔ Clears trouble codes

✔ Performs specialized tests on chassis components

✔ User friendly operator interface with easy to read menus

✔ Speeds up testing by reading ABS fast DTCs when possible

✔ Decodes diagnostic trouble codes to service manual Pinpoint Tests

✔ Reviews Ford Star Mode codes in Quick Test Review Codes test

✔ References Pinpoint Tests for both Ford and Mitchell manuals during Quick Test diagnostics

✔ Provides basic Ford Star Mode or advanced Quick Test Mode guided test diagnostics

✔ Saves up to 24 DTCs in each test mode

✔ Prints diagnostic parameters and trouble codes

✔ Prints summary test results for customer consultation or technician reference

✔ Retains data when power is disconnected

✔ Remembers last vehicle tested, even after the power is turned off

✔ Operating mode and test selection is menu driven

FORD VEHICLE SYSTEM APPLICATIONS

SYSTEM	VEHICLES
Integrated Vehicle Speed Control (IVSC)	1986-1995 Ford Taurus
	1986-1990 Mercury Sable
	1988-1991 Ford Crown Victoria, Mercury Grand Marquis; 1988-90 Lincoln Continental
	1987 1/2 - 1990 Lincoln Town Car, 1987 1/2 - 1992 Lincoln Mark VII
	1993 Lincoln Mark VIII
	1988-90 Ford Thunderbird and Mercury Cougar
Antilock Brake System (ABS)	1988-1997 Ford Thunderbird, Mercury Cougar
	1994-97 Mustang
	1992-94 Crown Victoria, Grand Marquis
	1983-92 Lincoln Mark VII
	1990-94 Lincoln Town Car
	1990-95 Taurus/Sable
	1993-94 Lincoln Continental, Explorer
	1993-96 Lincoln Mark VIII, Bronco
	1988-94 Lincoln Continental
	1990-92 Lincoln Town Car, Mark VII

FORD TESTS & PROCEDURES

TEST/PROCEDURE	DESCRIPTION

ANTILOCK BRAKE SYSTEM TESTS

Read Codes	A guided test that retrieves stored ABS codes from the electronic control assembly. ABS slow codes are translated and identify which test to perform.
Review Codes	Retrieves the latest codes from each test performed. A maximum of 24 codes can be saved for each test, including Star Mode. At the press of a button, the codes can be translated one code at a time to Pinpoint Test designations in the Ford and Mitchell service manuals.
Print Summary	Prints a summary of the year, model, components tested, diagnostic codes, and test results, all listed in sequential order, for reviewing test procedures and maintaining customer and business records.

INTEGRATED VEHICLE SPEED CONTROL TESTS

Prepare Vehicle	A guided checklist of component settings and other steps necessary to prepare the vehicle for testing.
Key On, Engine Off [KOEO]	A guided KOEO test that retrieves stored Speed Control KOEO codes from the vehicle electronic control assembly.
Key On, Engine Running [KOER]	A guided KOER test that retrieves stored Speed Control KOER codes from the vehicle electronic control assembly.
Review Codes	Retrieves the latest codes from each test performed. A maximum of 24 codes can be saved for each test, including Star Mode. At the press of a button, the codes can be translated one code at a time to Pinpoint Test designations in the Ford and Mitchell service manuals.
Print Summary	Prints a summary of the year, model, components tested, diagnostic codes, and test results, all listed in sequential order, for reviewing test procedures and maintaining customer and business records.

AIR SUSPENSION SYSTEM TESTS*

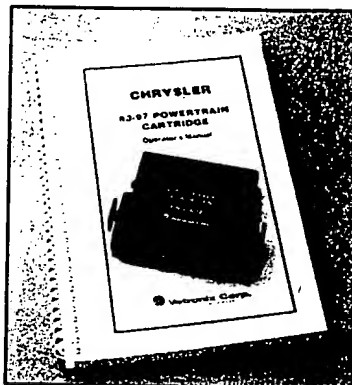|	
STAR Mode	Self test automatic readout (STAR) mode is fully supported in GM/Ford Chassis application cartridge.
Cycle Test	On Ford air suspension systems, the STAR mode is used to perform DTC read, service bay self test, system
Service Bay Self Test	cycle test, and spring fill test. (Consult Ford Service Manual)
Spring Fill Test	*The testers read codes in STAR MODE only; no Quick Test mode or Pinpoint Test decoding is available.

Chrysler Corp
Chrysler Powertrain

PRODUCT OVERVIEW

The Chrysler 1984-97 Powertrain cartridge is used to diagnose and troubleshoot engine and transmission systems on 1984-97 Chrysler, Eagle, Dodge, and Plymouth passenger cars and light duty trucks, and 1991-97 Jeep light duty trucks, including all OBD II compliant vehicles.

Data List, DTCs, Data Snapshot, Clear Codes, OBD Controls, System Tests, and Information modes are available depending on the vehicle.

NEW FOR 1997

✔ Read Freeze Frame data for 1996-97 OBD II compliant vehicles

✔ Read Cylinder misfire diagnostic data parameters

✔ Diagnose AW4 (Jeep) Transmission

✔ Read OBD II Trip Information for DTCs

✔ Operate 4 new actuator tests

✔ Read emissions-related diagnostic data parameters – enhanced OBD II

A significant benefit of the Chrysler 83-97 Powertrain Cartridge is the Diagnostic Review mode that lets you follow procedures defined in Chrysler manuals.

ENGINE TESTS

Engine System tests include RPM Control, Actuator Tests, Reset Memory, ASD Fuel System Test, Minimum Airflow Idle Speed Test, Vehicle and Module Information, Reset Emission Maintenance Reminder (EMR) lamp, Update Barometer, and Timing Tests. Actuator Test submode lets you cycle a specific device on and off. Depending on application, typical Actuator Tests consist of fuel injector, ignition coil, shift lamp, speed control, and air conditioning clutch components.

TRANSMISSION TESTS

Using the Tech 1A or Mastertech, the Powertrain cartridge provides you with Chrysler Collision Detection (CCD) bus EATX Transmission and Serial Communication Interface (SCI) diagnostics for engine systems to help you diagnose 41TE (A604), 42LE (A606), AW4 (Jeep) electronic automatic transaxles, and transmissions with electronic overdrive.

VEHICLE TEST APPLICATIONS

SYSTEM	VEHICLES
Engine Systems (SCI)*	All 1984 through 1997 Chrysler, Dodge, Plymouth, Eagle vehicles that contain Electronic Engine Control Systems including:
	• Feedback Carburetor (FBC)　　• OBD II
	• Electronic Fuel Injection (EFI)　　• Distributorless Ignition System (EI)
	• Throttle Body Fuel Injection (TBI)　　• Multiport Fuel Injection (MPI)
	• Electronic overdrive transmissions　　• Turbo-Charged
	All 1991-97 Jeep vehicles with MPI .
Transmission Systems (CCD)*	All 1988 through 1997 Chrysler vehicles which contain EATX transaxles:
	• A-604 (41TE) EATX　　• A-606 (42LE) EATX
	• AWA (Jeep) – 1997 only

*Some 1995 and all 1996-97 engine systems plus all EATX systems require the Chrysler Engine/CCD VIM

DIAGNOSTIC REVIEW

A significant benefit of the Chrysler 1984-97 Powertrain cartridge is the Chrysler Diagnostic Review (CDR) mode. This option, available on 1988 and earlier Chrysler vehicles, lets you follow diagnostic procedures defined in Chrysler manuals for the diagnostic readout box. The CDR mode includes fault code display and review, switch test, sensor tests, actuator tests, engine running tests, and clear fault codes.

SNAPSHOT FEATURE

Using the Snapshot feature, you can capture engine diagnostic parameters in the service bay or on the road. Depending on your selection, data is collected before and/or after an intermittent event and then saved in the tester for later analysis. This data is retained in the tester even if you remove your tester from the vehicle. Snapshot mode greatly simplifies the task of diagnosing difficult intermittent problems.

FEATURES:

✓ Automatically identifies Engine and Transmission type and configuration after selecting the system for diagnosing (available on 1989-97 vehicles)

✓ Selects systems by model year, system type and engine displacement, or by model year and VIN code

✓ Monitors Engine diagnostic data parameters and Transmission diagnostic data parameters

✓ Displays and stores Engine and Transmission Computer Fault Codes

✓ Clears Engine and Transmission Computer Fault Codes

✓ Snapshots multiple samples of Engine diagnostic data before and/or after intermittent events

✓ Prints Engine Computer diagnostic parameters in Data List mode

✓ Prints Engine Fault Codes

✓ Provides Cruise Control diagnostics

✓ Controls engine and transmission actuators (Fuel Injector, Shift Solenoid, etc.)

✓ Allows resetting of EMR lamps

✓ Performs specialized tests on electronic engine systems

✓ Performs various engine running tests

✓ Capable of operation as a Chrysler Diagnostic Readout Box

✓ Retains data when power is disconnected

✓ Full screen English language displays

✓ User friendly operator interface

The Chrysler 1984-97 Powertrain cartridge features full screen presentations that guide you through diagnosis of Chrysler SMEC, SBEC I, SBEC II, SBEC III and JTEC EEC systems. The tester displays easy to understand messages that give guidance during a test. This means less time spent thumbing through repair manuals looking for diagnostic procedures.

Using the RS232C interface and a printer, you can print a vehicle test summary for your records. This enables you to build a history of vehicle data for repeat customers, or maintain valuable shop repair order documentation.

OPERATING MODES:

✔ DATA LIST

Displays engine and transmission diagnostic data parameters in pre-selected or user selected pairs.

✔ CHRYSLER DIAGNOSTIC REVIEW (CDR)

Operates similar to Chrysler Diagnostic Readout Box with improved full screen displays and help messages. Performs engine system tests: DTC display/review, switch test, sensor tests, actuator tests, engine running tests and clear fault codes. This function supports 1984-88 and 1989 2.2L Turbo II Chrysler vehicles

✔ DIAGNOSTIC TROUBLE CODES

Displays DTCs that have been stored by the Engine or Transaxle Computer. The DTCs are displayed with a description of the fault code and OBD II Trip Information, if applicable. Fault codes can be saved in memory for later review. Clears fault codes stored in the EEC or EATX controller on 1989-1997 vehicles, except 1989 2.2L Turbo II.

✔ SNAPSHOT

Records data before and after the occurrence of an intermittent fault condition. Trigger conditions are user selectable and trigger by Engine Computer DTCs or manual key press.

✔ INFORMATION

Displays helpful information about the vehicle or system under test.

✔ OBD CONTROLS

The following tests are available for 1989 and later models, except 1989 2.2L Turbo II:

Engine System Modes
- Idle Speed Control
- Actuator Tests
- Reset Memory
- ASD Fuel System Test
- Minimum Airflow Idle Speed Test
- Vehicle and Module Information
- Reset EMR Lamp
- Update Barometer
- Base Timing

Transmission System Modes
- LR Solenoid
- 2-4 Solenoid
- UD Solenoid
- OD Solenoid
- RPM Display
- Module Info
- CVI Monitor
- Software Info
- Solenoid A
- Solenoid B
- Solenoid C

✔ SYSTEM TESTS

Engine System Modes
- Set Sync

Transmission System Modes
- Quick Learn

Asian Imports
Asian Coverage — Release 2

QUICK FACTS

The Asian Imports Cartridge Release 2 provides diagnostic capabilities for 15 Asian vehicle manufacturers: Acura, Chrysler Imports, Daihatsu, Honda, Hyundai, Infiniti, Isuzu, Kia, Lexus, Mazda, Mitsubishi, Nissan, and Subaru, Suzuki, and Toyota, making it one of the most complete Asian Imports diagnostic cartridges available.

Using this cartridge, you can access:
- Engine Controls
- Transmission Controls
- Anti-lock Brake Systems
- Air Conditioning
- Air Bags (SIR)
- Cruise control systems

Vetronix's Asian Imports Cartridge Release 2 has more features than any other competitor can offer.

COMPATIBILITY

The Asian Imports Cartridge is compatible with Vetronix's Mastertech, Tech 1 and Tech 1A testers, and connects to vehicle data link connectors using appropriate adapters.

The Asian Imports Cartridge is much more than a code reading device. Like other Vetronix application cartridges for the Mastertech, Tech 1 and Tech 1A, the Asian Imports Cartridge has the capability to:
- Display data list functions
- Read and clear diagnostic trouble codes (DTCs)
- Enter diagnostic trouble codes to get a description
- Run Miscellaneous Tests

Using a printer, you can print hardcopy test results. This information is helpful for your reference records as well as customer consultations.

MANUAL DTCS

DTCs for certain early model Asian import vehicles, those which do not have a data link connector, can be read, entered or cleared manually.

This eliminates having to search service information for the method required to interpret or clear DTCs. Simply select the vehicle and read the text information, then follow the steps on the tester display.

SNAPSHOTS

The cartridge's Snapshot feature greatly simplifies the task of diagnosing difficult intermittent problems by capturing diagnostic parameters in the service bay or during road testing.

Data is collected both before and after an intermittent event and saved in the tester for later analysis.

This data is retained in memory for up to 24 hours, even if you remove your tester from the vehicle.

BI-DIRECTIONAL CONTROL

For selected vehicles the Asian Imports Cartridge also lets you:
- Command different ECU operation modes
- Control idle speed
- Control various output actuators

Tests that can be run are vehicle dependent and reduce your reliance on shop manuals.

In addition, for Isuzu and Suzuki vehicles, output actuators can be controlled while data list parameters are being viewed to aid you in fast, effective diagnostics. This speeds up your time to a diagnostic solution.

MISCELLANEOUS TESTS

Many vehicle systems support the use of Miscellaneous Tests, which can be used to diagnose certain powertrain control system problems. For example, on select systems you can monitor the air fuel ratio, determine oxygen sensor range of operation, and perform switch tests.

In certain cases, using Miscellaneous Tests will command the ECU into a mode of operation that sets up a diagnostic environment that is ideal for fuel or ignition system diagnostics.

FEATURES

✓ Selects vehicles by make, model, year
✓ Provides data list functions on selected Asian vehicles
✓ Displays and stores Diagnostic Trouble Codes
✓ Bi-directional Diagnostic Trouble Codes clearing procedure
✓ Manual Diagnostic Trouble Codes clearing text
✓ Prints diagnostic data and Diagnostic Trouble Codes
✓ Snapshots diagnostic data before and after intermittent events
✓ Controls output actuators on some vehicles
✓ Performs specialized Miscellaneous Tests on selected ECUs
✓ Performs various engine running tests
✓ Retains data when power is disconnected
✓ All tests are selected from easy-to-use test menus
✓ User-friendly full screen English language displays

MANUFACTURER	YEARS	SYSTEMS	TEST MODES	MISC. TESTS
ACURA	1986-1994	Engine	DTC Entry ECU Location SCC Location	Prep Vehicle Vehicle info
CHRYSLER IMPORTS	1984-1994	Engine	DTC Entry DTC Read DLC Location DJC Location	Prep Vehicle Vehicle Info
DAIHATSU	1988-1992	Engine	DTC Entry DJC Location	Prep Vehicle Vehicle Info
HONDA	1985-1994	Engine	DTC Entry ECU Location SCC Location	Prep Vehicle Vehicle Info
HYUNDAI	1988-1994	Engine	DTC Entry DTC Read DLC Location DJC Location	Prep Vehicle Vehicle Info
INFINITI	1990-1994	Engine	DTC Entry ECU Location	Prep Vehicle Vehicle Info
ISUZU	1987-1994	Engine SIR	Data List Field Service DTC Read Snapshot	Output Tests Backup Fuel Clear DTC RPM Control Fuel Trim Reset Transmission
KIA	1994	Engine ECU Location	DTC Entry Vehicle Info DLC Location	Prep Vehicle
LEXUS	1990-1994	Engine, Transmission, ABS, SRS, AC, Cruise Control	Data List DTC Read Snapshot DLC Location	Prep Vehicle Vehicle Info
MAZDA	1983-1994	Engine	DTC Entry DTC Read DLC Location	Prep Vehicle Switch Tests O2S monitor Vehicle Info
MITSUBISHI	1984-1994	Engine	DTC Entry DTC Read DJC Location DLC Location	Prep Vehicle Vehicle Info
NISSAN	1984-1994	Engine	DTC Entry ECU Location DJC Location DLC Location	Prep Vehicle Vehicle Info
SUBARU	1983-1990	Engine	DTC Entry ECU Location DJC Location	Prep Vehicle Vehicle Info
SUZUKI	1991-1994	Engine	Data List Print Data DTC Read Snapshot	RPM Control Fixed Spark IAC Calibration EGR Control
TOYOTA	1983-1994	Engine, Transmission, ABS, SRS, AC, Cruise Control	Data List DTC Entry DTC Read Snapshot DLC Location	Prep Vehicle Vehicle Info

Global OBD II & Toolpak
Complete Coverage for Domestic, European and Asian Vehicles

PRODUCT OVERVIEW

The new Vetronix Global OBD II & Toolpak software is designed to help you understand and diagnose all OBD II systems.

Global OBD II software supports a broad base of vehicle manufacturers and includes full OBD II diagnostic test mode functionality in a display format that is easy to understand.

The OBD II Toolpak software complements the tester's Global OBD II diagnostic test mode capabilities, and helps you become familiar with OBD II terminology, operating modes and common operating values. No other scantool offers such a complete OBD II diagnostic software package for OBD II compliant vehicle systems.

Instead of having to buy multiple cartridges to diagnose domestic, European, and Asian vehicles, you can diagnose all OBD II compliant vehicle systems with one cartridge, one cable, and your existing Vetronix Mastertech or Tech 1A tester.

VETRONIX GLOBAL OBD II

✔ Automatically determines the vehicle communication protocol (J1850 VPW/PWM or ISO 9141-2)

✔ Displays all diagnostic data parameters supported by the vehicle's OBD II controller using *Data List* mode

✔ View the condition of the vehicle system at the time when an emission related diagnostic trouble code was stored with *Freeze Frame* mode

✔ Read emission DTCs that cause the MIL to be illuminated

✔ Store vehicle data before/after an intermittent or transient problem in *Snapshot* mode

✔ Clear all DTCs that cause the MIL to be illuminated

✔ Review the results of the oxygen sensor testing performed by the vehicle's powertrain control module with *O2S Test Results* mode

✔ Monitors the operation of the vehicles emissions-related components with *Readiness Tests* mode

✔ Displays additional diagnostic test results specific to the vehicle manufacturer with *Non-Continuous Test* mode

✔ Reports vehicle's continuously monitored emissions-related tests that have failed during a drive cycle and have not matured to indicate a diagnostic trouble code

TOOLPAK FUNCTIONS

✔ Gives diagnostic tips on preparing an OBD II vehicle for analysis, formalizing a strategy to using the Global OBD II test modes, and verifying repair effectiveness.

✔ Combines live on-screen vehicle system data together with the parameter's common operating values

✔ On-line text help for diagnostic data parameter definition - a must for understanding today's OBD II system terminology

✔ Supplies access to a complete OBD II DTC library defined for powertrain, chassis, and body systems

✔ Displays a complete description of each OBD II monitor function

✔ Shows the new OBD II naming convention for oxygen sensors (O2S) and displays important O2S maintenance information

GLOBAL OBD II TEST MODES

DATA LIST FORMATS

In the Data List mode, you can choose to view *All Parameters* available from the ECU under diagnosis, or select *Custom Data List* to view any combination of available parameters. The update rate will increase with fewer data list parameters selected for viewing. Possible parameters are:

Air Status	ECT (°)	Engine Load
Engine Speed	Fuel Pressure	Fuel Trim (for all supported O2 sensors)
Fuel Status	IAT (°)	Ignition Timing (°)
Mass Air Flow(lb/min)	Manifold Air Pressure	Long Term Fuel Trim (%)
MIL Status	OBD Certified	O2S Voltage (for all supported O2 sensors)
Stored DTCs	TPS (%)	Short Term Fuel Trim (%)
Trouble Code		

With the addition of OBD II Toolpak, actual text description is made available for each diagnostic data parameter that can be accessed while connected to a vehicle. This valuable information can also be accessed without a vehicle during a shop or training session.

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FREEZE DATA

Freeze Data allows you to review the condition of the vehicle at the time an emission-related Diagnostic Trouble Code (DTC) was stored by the vehicle ECU. This information is stored by the vehicle's engine controller and can assist you in identifying or reproducing the emission-related problem.

DIAGNOSTIC TROUBLE CODES (DTCS)

DTC mode displays emission related Diagnostic Trouble Code (DTC) number and text description for DTCs that are currently stored in the vehicle ECU. The software will display the quantity of stored DTCs as well as the ECU storing them. Since vehicles may have multiple ECUs, each controller can be individually selected to review it's stored Diagnostic Trouble Codes (DTCs).

SNAPSHOT

Snapshot mode gives you the ability to save diagnostic information before and after a problem occurs by triggering the snapshot on a DTC. Each frame of the snapshot displays the elapsed time relevant to the trigger point. Stored snapshot data can be replayed at a later time or stored in a PC using the Techview for Windows software made by Vetronix.

CLEAR DIAGNOSTIC INFORMATION

The *Clear Information* mode clears all MIL illuminating DTCs that are emission related. This function also clears additional diagnostic information that the controller has saved, such as Freeze Frame Data, O2 Test Results, and Readiness Tests status. This function is used clear all previously stored data from the controller so that the technician can initiate a vehicle system performance check and verify repair effectiveness.

OXYGEN SENSOR TEST RESULTS

O2S Results mode allows you to view the results of the oxygen sensor testing performed by the vehicle's engine controller. The results are either programmed constants or values calculated by the vehicle ECU. This test mode also determines which oxygen sensors are present on the vehicle and display those specific test results.

READINESS TESTS

The *Readiness Tests* mode allows you to view the status of the vehicle's on-board monitor tests and determine whether the vehicle's emission components are operating properly. All monitors supported by the vehicle must be run in order for the results to accurately reflect the condition of the vehicle's emission's related components.

NON-CONTINUOUS TESTS

With *Non-Continuous Tests* mode you can examine the results of various manufacturer-specific tests that are not continuously monitored. The manufacturer assigns a test ID and component ID for each component or system that is being monitored. Service material and the non-continuous test mode are used together to retrieve and understand the vehicle's test results.

CONTINUOUS TESTS

Continuous Tests mode enables you to obtain test results for emissions-related components and systems that are continuously monitored. This mode reports tests that have failed during the driving cycle and have not matured to indicate a DTC. Results are displayed in DTC format together with the reporting controller.

OBD II TOOLPAK

The OBD II Toolpak is contained within the Global OBD II application and is used to help diagnose and troubleshoot OBD II-compliant powertrain control systems. Toolpak displays pertinent text and data so that you can learn more about the vehicle being tested and become more proficient in diagnosing problems.

ON-VEHICLE DIAGNOSTICS

The OBD II Toolpak mode can be accessed while connected to, and performing diagnostics on, an OBD II-compliant vehicle system. By making the appropriate selections, a large amount of technical information is instantly made available to assist in diagnostic troubleshooting.

Example: diagnosing a vehicle system by reviewing diagnostic data parameters. — Common values for the specific diagnostic data parameter you believe may be contributing to the vehicle's problem would be helpful. With a few key presses you can view the parameter showing the actual value that is being sent by the ECU, together with the common hi/lo (or state values) for that parameter. Then confirm that the values are satisfactory with the ignition key and the engine on. To view common values for parameters at different vehicle conditions, choose from one of eleven possible selections. The vehicle conditions range from key on/engine off, to key on/engine running, and driving at 55 MPH, providing ample data to assist in diagnosing the problem.

— The example above is an actual diagnostic solution to a diagnostic problem. Common value information was taken from OBD II complaint systems on 4, 6, and 8 cylinder engines produced by different automobile manufacturers, all of which were functioning properly.

OFF-VEHICLE DIAGNOSTICS

To learn more about the sophisticated OBD II system, use the OBD II Toolpak mode without connection to the vehicle. The OBD II Toolpak in a valuable source of information — a training partner for the new OBD II system. OBD II Toolpak is full of text information that you can refer to or use as an aid, during work, lunch, or anytime.

For example, to understand the meaning of a readiness test or a diagnostic data parameter, simply select the monitor or parameter in question: with a simple keypress, the definition appears on the screen. This feature can effectively be used when referencing the service manual, by providing quick definition of the diagnostic term in question.

TOOLPAK DIAGNOSTIC INFORMATION

Diagnostic Information mode assists in preparing the vehicle for diagnostic analysis by displaying instructions to ensure that the vehicle system is preconditioned and ready for diagnostic analysis. It provides a roadmap of strategic procedures for efficiently using the Global OBD II test modes to troubleshoot a system fault or assess a system condition. Once a vehicle has been repaired, OBD II Toolpak displays the requirements necessary for OBD II repair verification, and the importance of manufacturer OBD II drive cycle and monitor completion.

TOOLPAK PARAMETERS

OBD II Toolpak provides a text description available for each diagnostic data parameter that can be accessed while connected to a vehicle, or during a shop or training session without the vehicle. Common high and low operating values for each data parameter are also available during different driving conditions. *(The common high and low values were obtained by collecting data from actual OBD II certified vehicles with no faults detected.)*

OBD II Adapter Cable

TOOLPAK DTC LIBRARY

OBD II Toolpak gives you access to a complete DTC library — defined by SAE — for powertrain, chassis, and body systems. Each DTC gives a text description of the DTC and can be accessed by entering the DTC number or by scrolling through the entire list.

TOOLPAK MONITOR INFORMATION

Monitor Information is new to emission diagnostics and can reveal the status of the vehicle's emission system. It has become increasingly important for the technician to be familiar with the OBD II monitors when working on an OBD II compliant vehicle. Thus, all OBD II monitors are listed with clear text-based descriptions, together with the possible test results.

TOOLPAK OXYGEN SENSOR INFORMATION

New with OBD II Toolpak, is the ability to view OBD II oxygen sensor (O2S) information, such as the new OBD II naming convention for O2S positions, as well as important maintenance information. The new OBD II naming of the oxygen sensors is dependent on the specific vehicle, and the number of O2 sensors and catalytic converters. Toolpak O2 sensor information helps you to clearly understand what you need to know about OBD II.

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